

THE CLAIMS

1. A self-adjusting lock assembly for securely affixing a first movable member to a second fixed member, said lock assembly comprising:
  - A. a latching stud assembly comprising
    - a. a holding bracket mounted to one of said members and comprising an enlarged aperture formed therein,
    - b. a latch-engaging, keeper stud co-operatively engaged with the holding bracket for secure retained engagement therewith and comprising an enlarged head portion and an elongated body portion extending from the head portion, and incorporating a plurality of radially extending teeth formed on the body portion thereof; and
  - B. a latch assembly comprising
    - a. a first jaw plate incorporating
      1. a stud-engaging jaw portion formed thereon and constructed for co-operative locking engagement with at least a first portion of the teeth formed on the body portion of the keeper stud, and

2. a movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the first jaw plate in its entirety,
- b. a second jaw plate incorporating
  1. a stud-engaging jaw portion formed thereon and constructed for cooperative locking engagement with at least a second portion of the teeth formed on the body portion of the keeper stud, and
  2. a movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the second jaw plate in its entirety, and
- c. a control member co-operatively engaged with the control arm of the first jaw plate and the control arm of the second jaw plate and constructed for causing simultaneous, longitudinal movement of the first jaw plate and the second jaw plate when activated;

whereby a lock assembly is achieved which provides a controlled secure affixation of the stud assembly with the latch assembly by peripherally surround-

ing and engaging the radially extending teeth of the body portion of the keeper stud regardless of position or orientation.

2. The self-adjusting lock assembly defined in Claim 1, and further comprising:

C. a first holding plate cooperatively aligned with the first jaw plate and the second jaw plate and incorporating a support arm integrally attached thereto and co-operatively associated with the control member for enabling the control member to arcuately pivot and controllably move the first jaw plate and second jaw plate in opposite longitudinal directions.

3. The self-adjusting lock assembly defined in Claim 2, wherein said control member is further defined as comprising an elongated arm affixed at one end to the movement control arm of the first jaw plate for controlled movement thereof, affixed at its opposed end to the movement control arm of the second jaw plate for controlled motion thereof, and pivotally mounted substantially midway along its length to the support arm of the first holding plate, whereby said control arm is capable of arcuately pivoting substantially about its midpoint for simultaneously controlling the longitudinal movement of the first jaw plate and the second jaw plate in opposite directions.

4. The self-adjusting lock assembly defined in Claim 3, wherein the stud engaging jaw portion of the first jaw plate is further defined as comprising an arcuately curved shape, constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between the radially extending teeth thereof and the stud engaging jaw portion of the second jaw plate is further defined as comprising an arcuately curved shape constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between the radially extending teeth thereof, in cooperating relationship with the stud engaging jaw portion of the first jaw plate, whereby the body portion of the keeper stud is substantially encircled by said jaw portions.

5. The self-adjusting lock assembly defined in Claim 4, wherein said lock assembly further comprises a second holding plate vertically aligned with the first holding plate and cooperatively associated with the first jaw plate and the second jaw plate for maintaining said jaw plates in sandwiched engagement therebetween and providing cooperative movement and engagement of said keeper stud by said first jaw plate and said second jaw plate.

6. The self-adjusting lock assembly defined in Claim 5, wherein said first holding plate and said second holding plate each comprise enlarged apertures formed therein and positioned in coaxial alignment for enabling the elongated body portion of the keeper stud to easily pass therethrough for engagement with the stud engaging jaw portions of the cooperating jaw plates.

7. The self adjusting lock assembly defined in Claim 6, wherein said first holding plate and said second holding plate are integrally formed as a housing peripherally surrounding and supportingly retaining the first jaw plate and the second jaw plate.

8. The self adjusting lock assembly defined in Claim 4, wherein the first jaw plate and the second jaw plate are further defined as being longitudinally movable between a first stud engaging position wherein the jaw portions of the first and second jaw plates are in peripherally surrounding, locking engagement with the body portion of the keeper stud, and a second position wherein the jaw portion of the first and second jaw plates are disengaged from the body portion of the keeper stud.

9. The self adjusting lock assembly defined in Claim 8, wherein said lock assembly further comprises a spring biasing member controllably associated with the first jaw plate for biasing the first jaw plate into its first position, whereby said latch assembly is normally biased in its first, keeper stud engaging position due to the cooperative, simultaneous movement of the first jaw plate and the second jaw plate.

10. The self adjusting lock assembly defined in Claim 9, wherein the spring biasing member is further defined as comprising a coil spring having mounting means formed at both opposed ends thereof, with one end of the coil spring being engaged with a portion of the first jaw plate and the opposed end thereof being engaged with a portion of the holding plate.

11. The self adjusting lock assembly defined in Claim 4, wherein the keeper stud is further defined as comprising a substantially cylindrically shaped elongated body portion having a diameter which is substantially smaller than the diameter of the aperture formed in the holding bracket, and the head portion comprises a diameter substantially greater than the diameter of the aperture formed in the holding bracket, whereby the keeper stud is capable of lateral

movement within the aperture of the holding bracket, while being incapable of longitudinal movement therethrough.

12. The self adjusting lock assembly defined in Claim 11, wherein said latch and stud assembly further comprises a holding panel mounted in overlying engagement with the enlarged head of the keeper stud and affixed to the holding bracket for preventing longitudinal, axial movement of the keeper stud relative to the aperture of the holding bracket, while enabling lateral movement of the keeper stud within the aperture.

13. The self adjusting lock assembly defined in Claim 12, wherein said holding bracket is further defined as comprising a substantially U-shape formed by two parallel wall members and intermediate central portion affixed to the ends of said wall members and said aperture is formed in the central portion, with the holding panel extending between and affixed to the parallel wall members thereof.

14. The self adjusting lock assembly defined in Claim 12, wherein said stud assembly further comprises a spring washer mounted about the body portion of the keeper stud and positioned between the enlarged head portion and the holding bracket, thereby biasing the enlarged head portion of the keeper stud into engagement with the holding panel, while controlling the lateral movement of the keeper stud relative to the aperture.

15. A self-adjusting lock assembly for securely affixing a first movable member to a second fixed member, said lock assembly comprising:

- A. a latching stud assembly comprising
  - a. a holding bracket mounted to one of said members and comprising an enlarged aperture formed therein,
  - b. a latch-engaging, keeper stud co-operatively engaged with the holding bracket for secure retained engagement therewith and comprising
    1. an enlarged head portion comprising a diameter greater than the diameter of the enlarged aperture of the holding bracket and an elongated body portion extending from the head portion comprising a substantially cylindrical shape having a diameter which is substantially smaller than the diameter of the aperture formed in the holding bracket, and
    2. incorporating a plurality of radially extending teeth formed on the body portion thereof, whereby the keeper stud is capable of lateral movement within the

aperture of the holding bracket, while being incapable of longitudinal movement therethrough; and

- B. a latch assembly comprising
  - a. a first jaw plate incorporating
    1. an arcuately curved stud-engaging jaw portion formed thereon and constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between two adjacent radially extending teeth thereof, and
    2. a movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the first jaw plate in its entirety,
  - b. a second jaw plate incorporating
    1. an arcuately curved stud-engaging jaw portion formed thereon and constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between two adjacent radially extending teeth thereof, in cooperating relationship with the stud engaging jaw portion of the first jaw plate, whereby

the body portion of the keeper stud is substantially encircled by said jaw portions, and

2. a movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the second jaw plate in its entirety,

- C. a first holding plate cooperatively aligned with the first jaw plate and the second jaw plate and incorporating a support arm integrally attached thereto and co-operatively associated with a control member for enabling the control member to arcuately pivot and controllably move the first jaw plate and second jaw plate in opposite longitudinal directions; and

- D. a control member

- a. co-operatively engaged with the control arm of the first jaw plate and the control arm of the second jaw plate and constructed for causing simultaneous, longitudinal movement of the first jaw plate and the second jaw plate when activated, and

- b. comprising an elongated arm affixed at one end to the movement control arm of the first jaw plate for controlled move-

ment thereof, affixed at its opposed end to the movement control arm of the second jaw plate for controlled motion thereof, and pivotally mounted substantially midway along its length to the support arm of the first holding plate, whereby said control arm is capable of arcuately pivoting substantially about its midpoint for simultaneously controlling the longitudinal movement of the first jaw plate and the second jaw plate in opposite directions;

whereby a lock assembly is achieved which provides a controlled secure affixation of the stud assembly with the latch assembly by peripherally surrounding and engaging the radially extending teeth of the body portion of the keeper stud regardless of position or orientation.

16. A self-adjusting lock assembly for securely affixing a keeper stud with a latch assembly, said latch assembly comprising:

- A. a first jaw plate incorporating
  - a. an arcuately curved stud-engaging jaw portion formed thereon and constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between two adjacent radially extending teeth thereof, and
  - b. a movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the first jaw plate in its entirety,
- B. a second jaw plate incorporating
  - a. an arcuately curved stud-engaging jaw portion formed thereon and constructed for partially encircling the body portion of the keeper stud and being retainingly engaged between two adjacent radially extending teeth thereof, in cooperating relationship with the stud engaging jaw portion of the first jaw plate, whereby the body portion of the keeper stud is substantially encircled by said jaw portions, and

- b. a movement control arm integrally formed thereon and  
constructed for enabling longitudinal movement of the sec-  
ond jaw plate in its entirety, and
- C. a control member co-operatively engaged with the control arm of  
the first jaw plate and the control arm of the second jaw plate and  
constructed for causing simultaneous, longitudinal movement of the  
first jaw plate and the second jaw plate when activated.

17. A self-adjusting locking system for securely affixing a storage box/tool box cover to a storage base, said locking system comprising:

- A. a first lock assembly comprising:
  - a. a first latching stud assembly comprising
    1. a first holding bracket mounted to said cover and comprising an enlarged aperture formed therein,
    2. a first latch-engaging, keeper stud co-operatively engaged with the holding bracket for secure retained engagement therewith and comprising an enlarged head portion and an elongated body portion extending from the head portion, and incorporating a plurality of radially extending teeth formed on the body portion thereof; and
  - b. a first latch assembly securely affixed to the storage base and comprising
    1. a first jaw plate incorporating
      - a. a stud-engaging jaw portion formed thereon and constructed for co-operative locking engagement with at least a first portion of the teeth

formed on the body portion of the first keeper stud, and

b. a first movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the first jaw plate in its entirety,

2. a second jaw plate incorporating

a. a second stud-engaging jaw portion formed thereon and constructed for cooperative locking engagement with at least a second portion of the teeth formed on the body portion of the first keeper stud, and

b. a second movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the second jaw plate in its entirety, and

3. a first control member co-operatively engaged with the first control arm of the first jaw plate and the second control arm of the second jaw plate and constructed

for causing simultaneous, longitudinal movement of the first jaw plate and the second jaw plate when activated;

B. a second lock assembly comprising:

- a. a second latching stud assembly comprising
  1. a second holding bracket mounted to one of said members and comprising an enlarged aperture formed therein,
  2. a second latch-engaging, keeper stud co-operatively engaged with the holding bracket for secure retained engagement therewith and comprising an enlarged head portion and an elongated body portion extending from the head portion, and incorporating a plurality of radially extending teeth formed on the body portion thereof; and
- b. a second latch assembly comprising
  1. a second jaw plate incorporating
    - a. a third stud-engaging jaw portion formed thereon and constructed for co-operative locking

engagement with at least a first portion of the teeth formed on the body portion of the second keeper stud, and

- b. a third movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the first jaw plate in its entirety,

2. a fourth jaw plate incorporating
  - a. a fourth stud-engaging jaw portion formed thereon and constructed for cooperative locking engagement with at least a second portion of the teeth formed on the body portion of the second keeper stud, and
  - b. a fourth movement control arm integrally formed thereon and constructed for enabling longitudinal movement of the second jaw plate in its entirety, and
3. a second control member co-operatively engaged with the third control arm of the second jaw plate and the

fourth control arm of the fourth jaw plate and constructed for causing simultaneous, longitudinal movement of the third jaw plate and the fourth jaw plate when activated;

- C. an elongated connecting rod securely affixed to one end thereof to the second movement control arm of the second jaw plate of the first latch assembly and securely affixed at its opposed end to a portion of the third jaw plate of the second latch assembly whereby movement of the second jaw plate causes the third jaw plate to move simultaneously therewith resulting in both the first latch assembly and the second latch assembly to open and close simultaneously;
- D. a first actuating rod connector at one end to a portion of the first jaw plate of the first latch assembly with the opposed end extending to the edge of the storage box for controlled axial movement by the user; and
- E. a second activating rod connected at one end to the fourth movement control arm of the fourth jaw plate of the second latch assem-

bly, with the opposed end extending to the edge of the storage box for responsive controlled axial movement by the user; whereby a locking system is attained which allows both latch assemblies to operate simultaneously in response to user activation at either end of the storage box.